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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,438	05/10/2005	Akihiro Morikawa	10873.1702USWO	4795
52835	7590	07/10/2008	EXAMINER	
HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902			KIANNI, KAVEH C	
		ART UNIT	PAPER NUMBER	
		2883		
		MAIL DATE	DELIVERY MODE	
		07/10/2008	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/534,438	MORIKAWA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	K. Cyrus Kianni	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 05 September 2007.

2a) This action is **FINAL**.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-7 and 11-16 is/are rejected.

7) Claim(s) 8-10 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 15 March 2007 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____ .

## DETAILED ACTION

### ***Allowable Subject Matter***

Claim 8-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 8 allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein a distance L1 between the first groove and the second groove satisfies  $1 \text{ mm} < L1 < L/2$ , where L denotes a length of the optical waveguide device in combination with the rest of the limitations of the base claim.

Claims 9-10 are allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein a third groove is formed at the surface of the sub-mount at a region corresponding to the outgoing end side of the optical waveguide device, the third groove being formed parallel to the second groove and being positioned between the second groove and the incident end face of the optical waveguide device in combination with the rest of the limitations of the base claim.

- Applicant is kindly advised to appropriately narrow the scope of the invention, as suggested by the examiner to Mr. Mueller on 7/3/08, subsequent to the proposed amendment by the applicant on 7/2/08—faxed--, in order to allow the case.

## Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (US 6371664).

Regarding claims 1, Takahashi teaches a laser module (shown in at least fig. 14), comprising: a substrate 1; a semiconductor laser 7 secured to a surface of the substrate 1; and an optical waveguide device 3 joined to the surface of the substrate 1 by an adhesive layer 40 so that the optical waveguide device is coupled optically with the semiconductor laser 7, wherein a first groove is formed at the surface of the substrate 1 at a region corresponding to an incident end side of the optical waveguide device 3, the first groove 35 being formed parallel to an outgoing end face of the

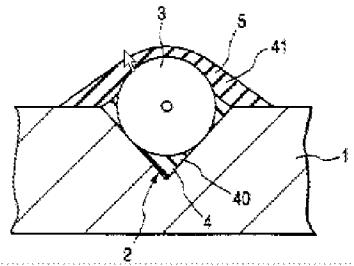


Figure 9c,

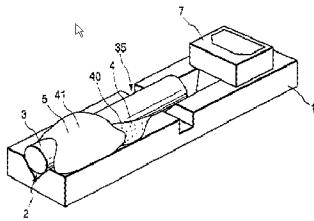


Figure 8 or 15

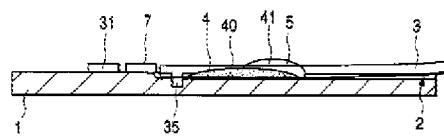


Figure 14

semiconductor laser 7 with a predetermined space therefrom, and the adhesive layer 40 is formed as a single layer provided under the optical waveguide device ranging from a surface of the sub-mount to the inside of the first groove so that an end portion of the adhesive layer on the incident end side of the optical so that an end portion of the adhesive layer on the incident end side of the optical waveguide device is positioned inside of the first groove so as to adhere to a surface of a wall of the first groove under the optical waveguide device and does not contact with the outgoing end face of the semiconductor laser (see at least fig. 7, 9b-c, 8 and 14-15 and col. 12, 5<sup>th</sup> parag. and col. 13, 7<sup>th</sup> parag.; wherein a single layer of adhesive is formed inside groove 35, and wherein the 2<sup>nd</sup> embodiment is similar to the 1<sup>st</sup> embodiment with regard to adhesive layer 40, shown in fig. 9c above, except to the portion 5 which is not relevant to the claimed invention, col. 17, 3<sup>rd</sup> parag.).

However, Takahashi does not explicitly teach wherein the above substrate is a sub-mount and that wherein a length L of the optical waveguide device satisfies  $L > 10$  mm and wherein the optical waveguide device is a quasi-phase-matched second harmonic generation (QPM-SHG) device. It is obvious/well-known to those of ordinary

skill in the art when the invention was made that a substrate for mounting/supporting item modules is/known as a sub-mount and that although Takahashi states that various segments o the module is in several 100 microns, but considering the size of the module as shown in at least fig. 4, would approximately in about 10 mm or larger nevertheless, it is obviously it is more challenging to have a smaller in size module than a larger one, use a conventional QPM-SHG (such as that the one admitted by applicant as prior art shown in fig. 13 of the specification and/or drawing) and since such size and support item would provide information processing apparatuses and light sources for optical communication (col. 1, lines 17-20) and that a change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Takahashi further teaches wherein a distance D between the outgoing end face of the semiconductor laser and a proximal end of the adhesive layer satisfies  $0 \text{ mm} < D < 0.2 \text{ mm}$  (see at least col. 8, 4<sup>th</sup> parag. and fig. 8, wherein the size between the laser and the groove/adhesive is microns); wherein the adhesive layer is provided partially at one position close to an incident end face of the optical waveguide device (shown in at least fig. 8); wherein the adhesive layer is provided partially at least at two positions, close to an incident end face of the optical waveguide device and close to an outgoing end face of the optical waveguide device (see at least fig. 7); wherein a second groove is formed at the surface of the substrate at a region corresponding to an outgoing end side of the optical waveguide device, the second groove being formed parallel to the outgoing end face of the optical waveguide device, and the adhesive layer close

to the outgoing end face is provided along the second groove (see at least fig. 18, item 2 as a first groove and item 60 as a second groove, both are considered as parallel to the outgoing end face of the optical waveguide device 3 and see col. 18, lines 37-41 and col. 20, lines 28-37); wherein an area of the adhesive layer close to the incident end face is larger than an area of the adhesive layer close to the outgoing end face (shown in at least fig. 14); wherein a third groove is formed at the surface of the substrate at a region corresponding to the incident end side of the optical waveguide device, the third groove being formed parallel to the first groove and being positioned between the first groove and the outgoing end face of the optical waveguide device (see at least fig. 18, item 2 as a first groove and item 60 as a third/second groove, both are considered as parallel to the outgoing end face of the optical waveguide device 3 and see col. 18, lines 37-41 and col. 20, lines 28-37); wherein a thickness T1 of the optical waveguide device satisfies  $T1 < 1$  mm (wherein the fiber/waveguide is in microns); wherein a width W of the optical waveguide device satisfies  $W < 0.85$  mm (wherein the fiber/waveguide is in microns); wherein a thickness T2 of the substrate satisfies  $T2 < 0.3$  mm (in fig. 1, see the diameter of the fiber 3 and thickness of the substrate 1 and see col. 12, 4<sup>th</sup> parag. being less than .15 mm); wherein the optical waveguide device is an optical fiber 3.

***Response to Arguments and Amendment***

Applicant's argument filed on 3/6/08 have been fully considered but they are not persuasive.

Regarding applicant's assertion that Takahashi does not teach the adhesive layer is formed as a single layer provided under the optical waveguide device ranging from a surface of the sub-mount to the inside of the first groove so that an end portion of the adhesive layer on the incident end side of the optical so that an end portion of the adhesive layer on the incident end side of the optical waveguide device is positioned inside of the first groove so as to adhere to a surface of a wall of the first groove under the optical waveguide device and does not contact with the outgoing end face of the semiconductor laser. The examiner responds that such limitation is indeed taught by Takahashi in which such layer is formed in the discharge groove 35 which is formed on the walls forming the groove 35 which is discharged from beneath the optical fiber residing over a crossing groove above the discharge groove 35 (see at least fig. 7, 9b-c, 8 and 14-15 and col. 12, 5<sup>th</sup> parag. and col. 13, 7<sup>th</sup> parag.). The Examiner further explaines that responds that the adhesive layer 40 is formed so that an end of the adhesive layer on the incident end side of the optical waveguide device is positioned inside of the first groove so as to be in contact with a surface of a wall of the first groove and does not contact with the outgoing end face of the semiconductor laser (see at least fig. 9b-c and 14-15; wherein the 2<sup>nd</sup> embodiment is similar to the 1<sup>st</sup> embodiment with regard to adhesive layer 40, shown in fig. 9b-c, except to the portion 5 which is not relevant to the claimed invention; see col. 17, 3<sup>rd</sup> parag.).

***THIS ACTION IS MADE FINAL***

This action in response to applicant's amendment made FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is 571-272-2417. The examiner can normally be reached on 9:30-19:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/K. Cyrus Kianni/  
Primary Examiner, Art Unit 2883

July 6, 2008

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